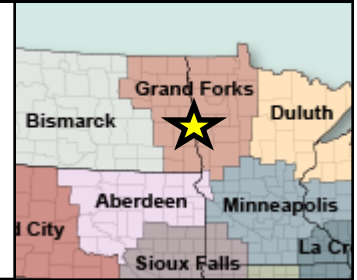


National Weather Service Grand Forks



Weather & Climate Review

May-June 2022

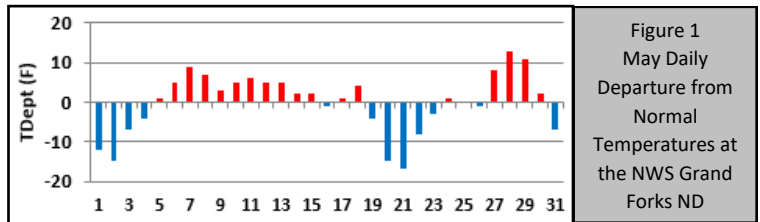


May

	AveT	TDept	THigh	TLow	Pcpn	PDept	Snow	PWnd
DVL	52.7	-0.8	79	30	3.78	1.31	M	58
NWS GF	55.2	0.2	83	31	6.10	3.17	T	M
GFK	54.8	0.7	84	32	5.09	2.29	T	72
RDR	54.4	0.3	82	31	5.89	3.09	M	67
FAR	55.1	-1.5	84	28	3.18	0.09	T	58
BDE	54.5	2.4	78	33	4.77	1.94	M	51
PKD	54.8	0.6	82	29	3.17	0.08	M	56
BJI	53.0	0.8	83	27	1.80	-1.38	M	41
TVF	54.0	-0.3	80	30	3.72	0.87	M	58
Y63	55.8	-0.1	82	31	M	M	M	M
AGA	53.1	-2.6	78	26	6.59	3.44	0.0	M

Table 1 May 2022 Temperature and Precipitation Statistics

In Table 1, (ND) **DVL** = Devils Lake, **NWS GF** = NWS Grand Forks, **GFK** = GF Airport, **RDR** = GF Air Force Base, **FAR** = Fargo, (MN) **BDE** = Baudette, **PKD** = Park Rapids, **BJI** = Bemidji, **TVF** = Thief River Falls, **Y63** = Elbow Lake, **AGA** = Agassiz MN NWR.



Blue Bars = Colder than Normal Days & Red Bars = Warmer than Normal Days

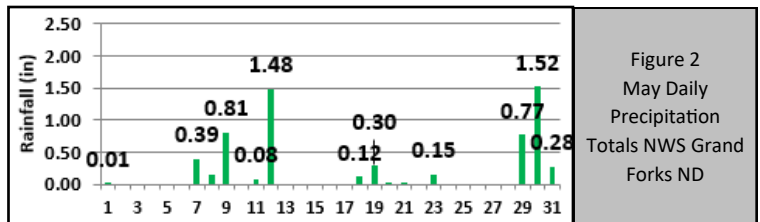


Figure 2 May Daily Precipitation Totals NWS Grand Forks ND

Table 1 shows the May average temperature (AveT), departure from normal temperature (TDept), highest temperature (THigh), lowest temperature (TLow), precipitation (Pcpn), departure from normal precipitation (PDept), snowfall (Snow), and peak wind speed (PWnd in mph) for 11 climate stations. The May average temperature was near normal at all sites. Precipitation amounts were above normal at most sites. Figure 1 plots the daily departure from normal temperatures in May 2022 at the NWS Grand Forks. In general, there were several stretches of cold weather (1st-3rd and 20th-22nd), and several days of warm weather (27th-29th). Figure 2 shows the May daily precipitation totals at NWS Grand Forks. There were two days in May (12th and 30th) with a rainfall total near 1.50 inches.

Records At Fargo-Moorhead, our longest running climate site, a new record precipitation amount occurred on the 9th, with a precipitation total of 1.13 inches.

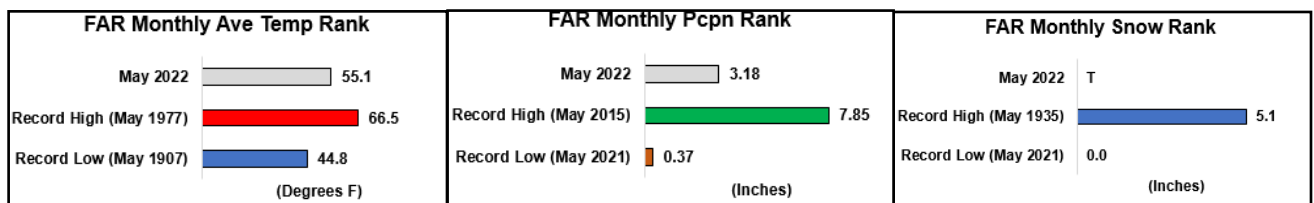


Figure 3 May 2022 Fargo Temperature and Precipitation Statistics Compared to Records

Figure 3 compares the May 2022 average temperature (AveT), precipitation (Pcpn), and snowfall (Snow) at Fargo to the established records.

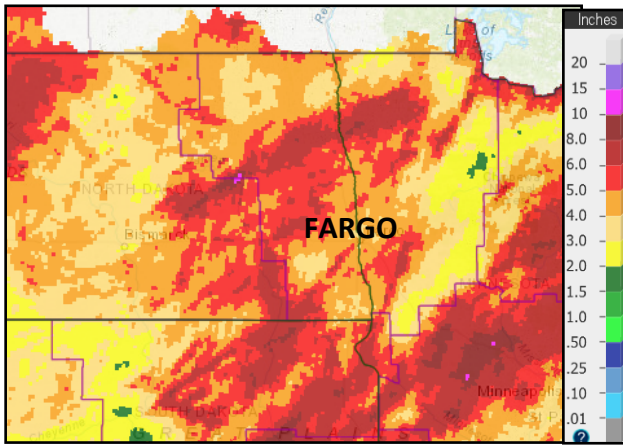


Figure 4 May Observed Precipitation

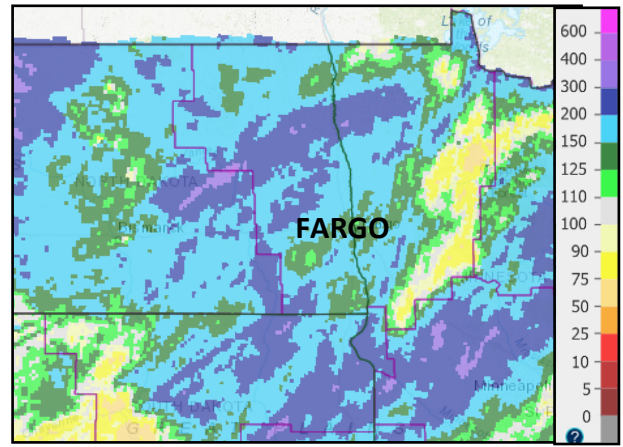


Figure 5 May Percent of Normal Precipitation

Figure 4 gives a May precipitation estimate for all of eastern North Dakota and the northwest quarter of Minnesota. Most of the area received 2 to 8 inches of precipitation (yellow, orange, and red colors). Figure 5 shows the May percent of normal precipitation. Most of the area received 75 to 300 percent of normal precipitation (yellow to dark blue colors).

Temperature

Figure 6 CPC Temp Outlook

Precipitation

Figure 8 CPC Pcpn Outlook

Figure 7 Obs Temp Dept

Figure 9 Obs Pcpn Dept

The May temperature (Figure 6) and precipitation (Figure 8) outlooks issued by the Climate Prediction Center (CPC) in late April are shown above. Compare these with the observed May departures from normal temperatures (Figure 7) and precipitation (Figure 9).

Longer Term Trends

Looking at just the Fargo climate site (FAR), Figures 10 and 11 show how May 2022 fits into the previous 5 months. Figure 10 plots the monthly departures from normal temperatures at Fargo. The blue bars represent months that were colder than normal, while the red bars represent months that were warmer than normal. Figure 11 plots the monthly departures from normal precipitation at Fargo. The green bars represent months that were wetter than normal, while the brown bars represent months that were drier than normal.

The last six months have all seen below normal temperatures (Figure 10). After the very wet April, the May precipitation total was close to normal (Figure 11).

Figure 12 tracks how much precipitation has fallen since January 1, 2022, and how it compares to normal and last year. Snowfall is also tracked for the snow season, which began on July 1, 2021.

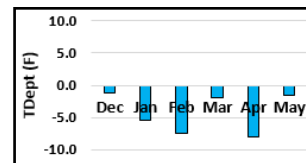


Figure 10 Monthly Departures from Normal Temps at Fargo, ND

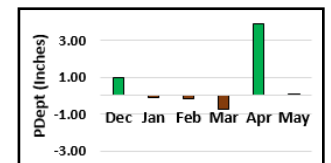


Figure 11 Monthly Departures from Normal Pcpn at Fargo, ND

	Observed Value	Normal	Departure from Normal	Last Year
Pcpn Since Jan 1	10.29	7.28	3.01	2.95
Snow Since Jul 1	56.2	51.4	4.8	28.8

Figure 12 Yearly Precipitation & Seasonal Snowfall Trends at Fargo

U. S. Drought Monitor

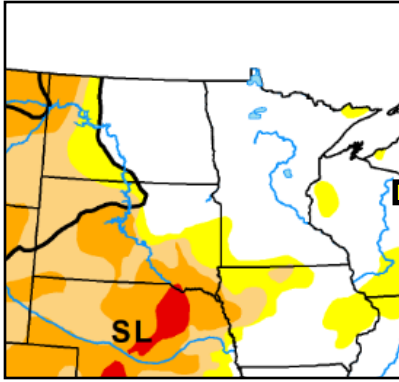


Figure 13 U. S. Drought Monitor, May 3

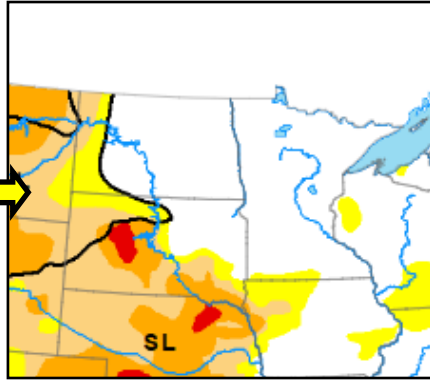
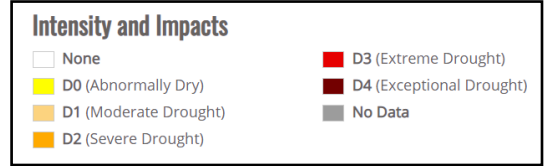


Figure 14 U. S. Drought Monitor, May 26

For eastern North Dakota and the northwest quarter of Minnesota, there were no drought designations in May (Figures 13 & 14). The key for both figures is shown below.



Spring Warnings

May 2022 featured two High Wind Warnings, one on the 8th and the other on the 13th (Figures 15 and 16).

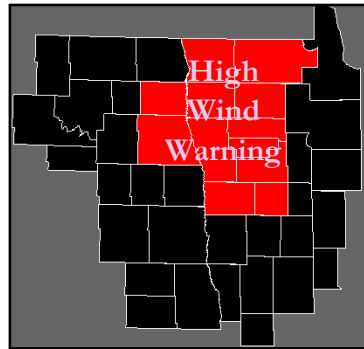


Figure 15 May 8 Warning Area



Peak Winds

- Grand Forks Airport 71 mph
- ~Wahpeton 63 mph
- Grand Forks I-29 62 mph
- Emerado 60 mph

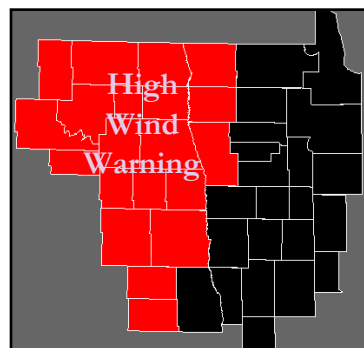


Figure 16 May 13 Warning Area



Peak Winds

- GF Air Force Base 67 mph
- Langdon ND 66 mph
- Grand Forks Airport 64 mph
- Cavalier ND 60 mph
- Gwinner ND 58 mph

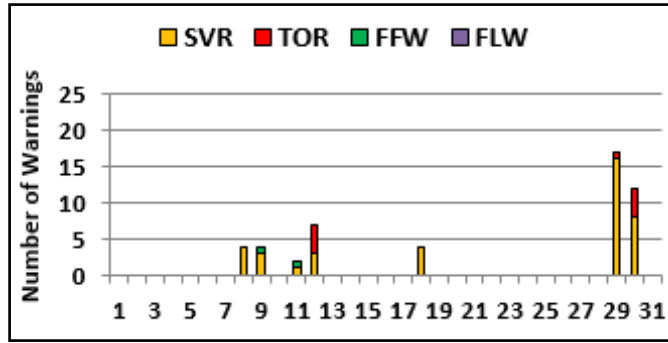


Figure 17 Number of May Warnings

A few Severe Thunderstorm and Tornado Warnings were issued in early to mid May, but the busiest period was May 29th and 30th (Figure 17). Figure 18 shows the surface map on the afternoon of May 30th, when the SPC had a moderate risk for severe weather from Sioux Falls to east of Bemidji (Figure 19). By afternoon, this brought a Particularly Dangerous Situation Tornado Watch to west central Minnesota (Figure 20). The preliminary local storm reports are shown in Figure 21. More reports are likely to come in over the next few days as storm damage surveys from the affected offices are completed.

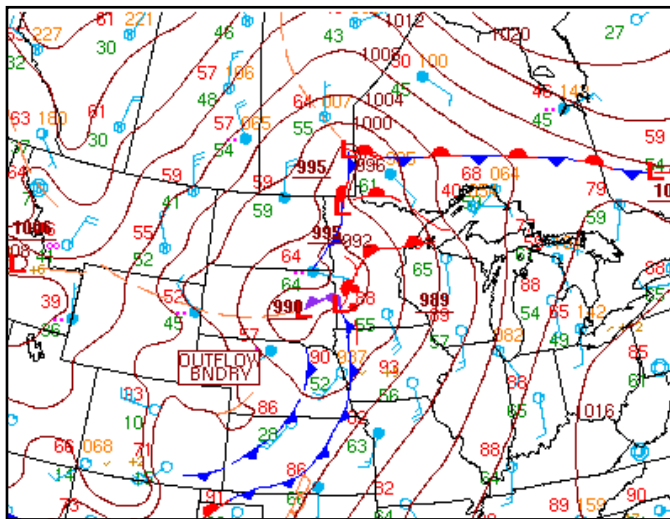


Figure 18 May 30th 4 PM Surface Map

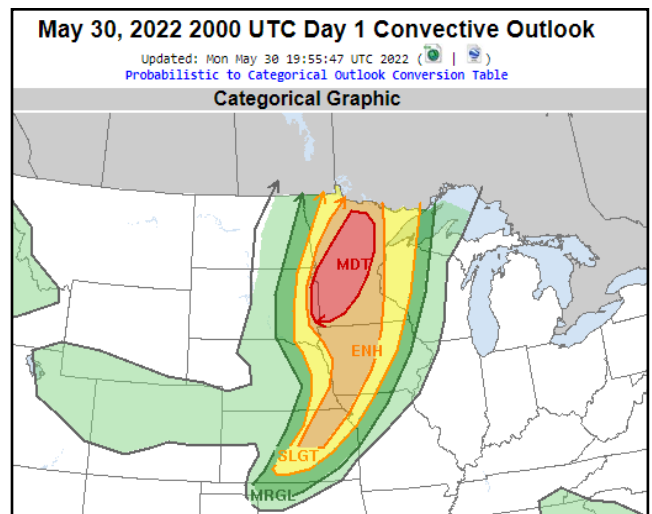


Figure 19 May 30th SPC Day 1 Convective Outlook

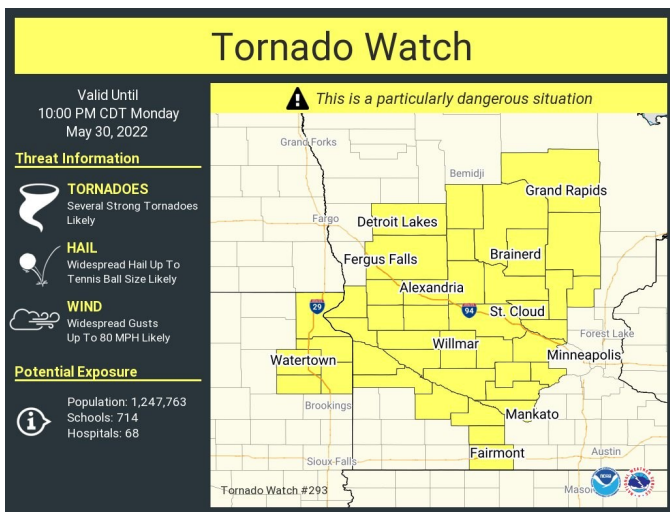


Figure 20 May 30 Tornado Watch

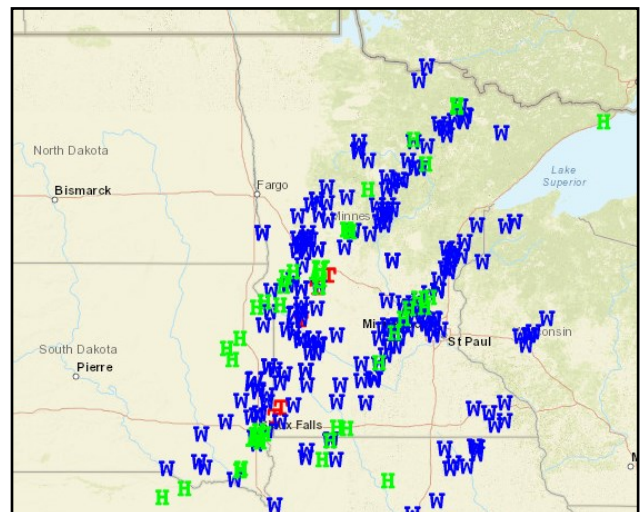


Figure 21 May 30th Preliminary Storm Reports

W= Wind Damage, T = Tornado, H = Hail

Flooding

Periods of heavy rainfall kept the river levels high in May. Figures 22 and 23 show the Red River gage heights at Fargo and East Grand Forks through the month of May. Large lakes of water formed north of Grand Forks that could be seen on satellite imagery (Figure 24) and on webcams (Figure 25).

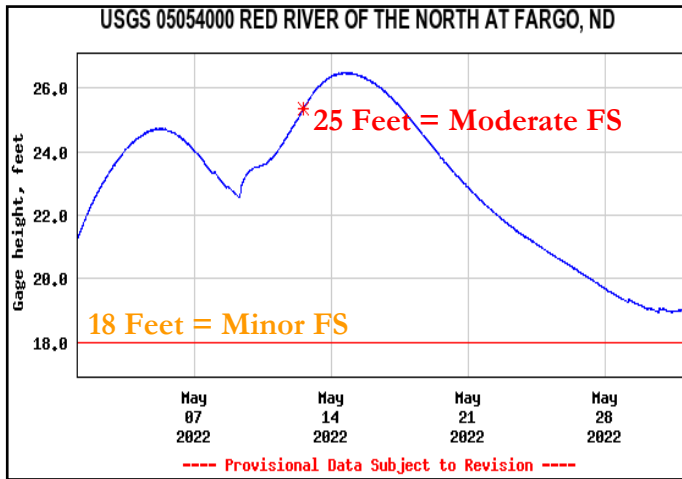


Figure 22 May Red River levels at Fargo

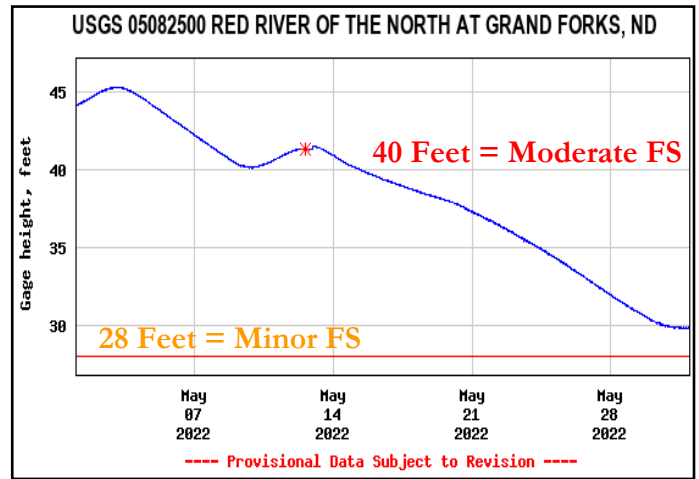


Figure 23 May Red River levels at East Grand Forks

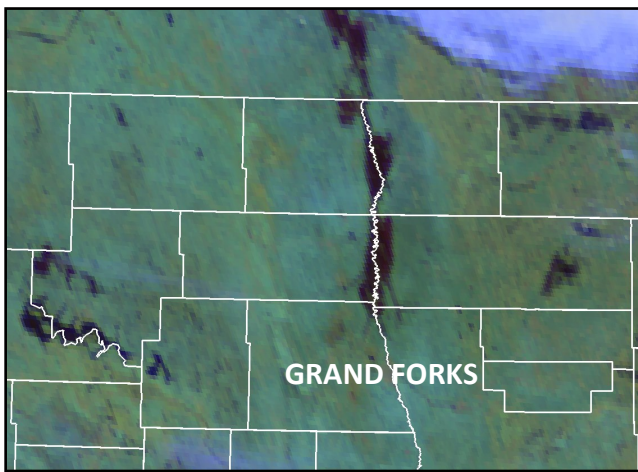


Figure 24 Visible Satellite image May 15th



Figure 25 Drayton ND Red River Bridge May 15th

June

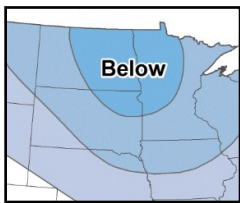


Figure 26 Temperature

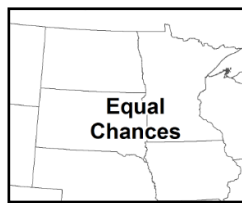


Figure 27 Precipitation

The latest Climate Prediction Center (CPC) temperature (Figure 26) and precipitation (Figure 27) outlooks for June 2022 are shown to the left. For eastern North Dakota and the northwest quarter of Minnesota, the CPC is forecasting higher probabilities for below normal temperatures and equal chances for above, normal, or below normal precipitation amounts.

Sunrise/Sunset

Fargo, ND	Jun 1	Sunrise: 5:37 am	Sunset: 9:13 pm
	Jun 30	Sunrise: 5:36 am	Sunset: 9:26 pm



Last Year & Normals

Per Table 2, in June 2021, the average temperature was well above normal at all sites. Precipitation amounts were below normal at all sites.

	AveT	TDept	THigh	TLow	Pcpn	PDept	Snow	PWnd
DVL	69.3	4.7	103	43	2.32	-1.44	0.0	66
NWS GF	71.3	5.9	103	45	2.45	-1.68	0.0	M
GFK	69.3	4.7	103	42	2.45	-1.32	0.0	63
RDR	69.9	5.3	104	42	1.67	-2.10	0.0	47
FAR	71.6	4.8	102	46	3.59	-0.70	0.0	50
BDE	67.2	4.9	98	41	1.37	-2.95	0.0	42
PKD	69.7	5.5	100	40	1.56	-2.52	0.0	46
BJI	67.4	5.0	96	35	1.28	-3.29	0.0	37
TVF	69.1	4.5	99	41	1.73	-2.76	0.0	48
Y63	71.2	4.6	98	44	M	M	M	M

Table 2 June 2021 Temperature and Precipitation Statistics

Figure 28 shows normal highs and lows on June 1st for selected cities across eastern North Dakota and northwest Minnesota. Figure 29 shows how normal highs and lows change by June 30th. As an example, at NWS Grand Forks on June 1st, the normal high is 73 and the normal low is 48. By June 30th, the normal high rises to 79 and the normal low rises to 56. Figure 30 shows the normal precipitation for a few selected sites. As an example, the normal precipitation at NWS Grand Forks in June is 3.77 inches.

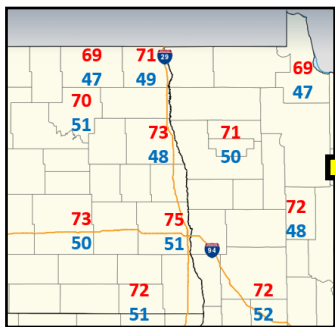


Figure 28 Normal Temps Jun 1

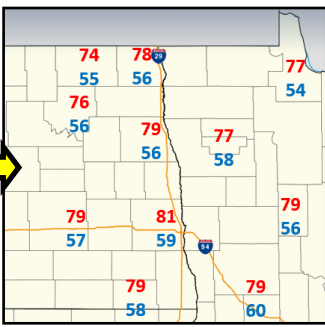


Figure 29 Normal Temps Jun 30

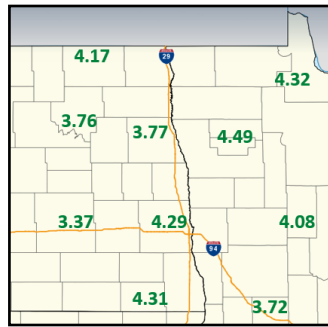


Figure 30 Normal Jun Pcpn

Summer Warnings 2021

Back to back days with 100+ degree temperatures occurred at Fargo on June 4th and 5th, 2021. Two consecutive 100+ degree days had not happened in Fargo since July 5th and 6th of 1988. The earliest 100+ degree days in Fargo were May 30th, 1934 and 1939. Forty-three severe thunderstorm warnings were issued in June 2020, mostly during the first half of the month (Figure 31). Red Flag Warnings were issued on June 4th and 5th, for low humidity and gusty winds.

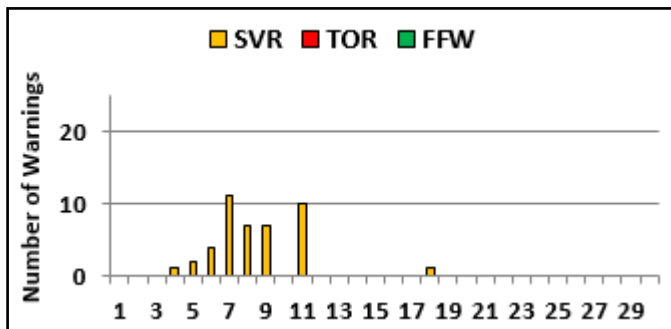


Figure 31 Number of June 2021 Convective Warnings